Space Weather Forecast

Issued on Sunday, 03 March 2024 at 01:18 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Risk of Moderate or Strong solar from large region just beyond northwest limb declining slowly. Low risk of Active intervals possible from any coronal mass ejection (CME) arrivals early on 03 March.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Activity has been Low, with a large sunspot rotating across the northwest limb, but which still evident from looping on relevant imagery. Two large regions in the northwest and southwest quadrants appear to be developing and becoming increasingly magnetically complex. The remaining regions are relatively stable or weakening, but two regions close to the southeast limb need to be monitored for potential developments. No Earth directed Coronal Mass Ejections (CMEs) were identified in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds were at ambient levels generally on a weakening trend. The interplanetary magnetic field was weak throughout. The north-south component varied weakly, but was mostly southward directed. Geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no radiation storms observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Low activity is expected with a decreasing likelihood of Moderate or Strong flaring from a large region which has just rotated beyond the northwestern limb, with a current slight chance of an increasing risk from two developing regions in the western hemisphere.

Solar Wind / Geomagnetic Activity: Three CMEs may glance the Earth early on 03 March with a low likelihood. Otherwise the Earth is expected to remain in a benign solar wind environment, with no fast solar winds expected. Geomagnetic activity is forecast to be mainly Quiet with some Unsettled periods. There is a low risk of Active or G1/Minor Storm intervals from any CME arrivals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is likely to persist at background levels, but with a slight chance of rising above the S1/Minor Radiation Storm threshold in response to any notable flares from the large sunspot which has rotated beyond the northwest limb.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	50	40	20	20
Very Active	R3 to R5 X	No	10	5	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	15	15	5	5
Very Active	≥ S3 *	No	5	5	5	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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